

REMARKS/ARGUMENTS

Claims 1-7 were pending all of which stand rejected. Claim 7 has been amended and Claims 21-35 have been added.

Election/Restrictions

Applicants have elected Claims 1-7. Claims 8-20 have been cancelled.

Drawings

The drawings were objected to under 37 CFR 1.83(a) because they failed to show the organo-metallic oxide recited in Claim 7. Figs. 5A-5E, 6A-6E, 7A-7C, 8A-8C and 10 have been amended to include an organo-metallic coating as described in the specification in the paragraph starting at page 7, line 19. Thus, no new matter is added. A proposed drawing correction showing the changes is attached hereto as a separate letter pursuant to MPEP §608.02(r).

Formal drawings will be filed incorporating these changes upon the Examiner's acceptance of the proposed drawing changes.

Specification

The Examiner objected to the specification for failing to provide proper antecedent basis for the recitation of an organo-metallic oxide in Claim 7. The specification at page 7, line 27, states that the surface of the leadframe is covered with an "organometallic brown coating." Claim 7 has been amended to recite an "organo-metallic coating."

Claim Rejections – 35 U.S.C. §102

Claims 1 and 3 were rejected under 35 U.S.C. §102(b) as being anticipated by Yamasaki et al. The Examiner stated, among other things, that Yamasaki et al. teach that the surface of the leadframe is roughened, referring to col. 2, lines 31-41 of Yamasaki et al. The Examiner acknowledged that Yamasaki et al. "do not teach that the roughened surface is achieved by chemical etching." Claim 1 recites "a leadframe having a chemically-etched surface" Claim 3 recites a leadframe having a surface that "is roughened by exposing said surface to a chemical etchant." Despite these recitations, the

Examiner stated that Claims 1 and 3 are product-by-process claims and therefore the "determination of patentability is based on the product itself," citing In re Thorpe, 777 F.2d 695, 698 (Fed. Cir. 1985).

The passage of Yamasaki et al. cited by the Examiner, col. 2, lines 31-41, reads in part as follows:

"The surface of the center bases have been formed with rough surfaces in order to expedite the strength of connection between the frames and the moulding which is to be provided in the following process." (Col. 2, lines 38-41)

This appears to be the only reference in Yamasaki et al. to the roughening of a surface. Note that Yamasaki et al. do not indicate how the surface is roughened. Thus it is not possible to state with any assurance what the physical characteristics of the product disclosed in Yamasaki et al. are. There are a variety of ways of roughening the surface of a leadframe, as indicated by the Crema et al. and Marrs references, cited by Applicants.

In re Thorpe, cited by the Examiner, states that the process limitation of a product-by-process claim may be ignored for purposes of determining patentability only if "the product in the product-by-process claim is the same as or obvious from a product of the prior art."

The specification, for example at page 10, lines 3-20, describes in detail the physical characteristics of the surfaces that the Applicants obtain with their chemical etching process. For example, the arithmetic mean deviation of the surface profile (Ra) is stated to be in the range of 0.050 to 0.17 µm. The mean peak-to-valley height (Rc) is stated to be in the range of 0.180-0.700 µm.

In contrast, the Applicants are unable to find any characterization of the roughened surface in Yamasaki et al. Yamasaki et al. simply state that the center base is formed with "rough surfaces," without giving any indication of the physical characteristics of the "rough surfaces." Accordingly, there is no basis for concluding here that the product described in this application and recited in Claim 1 is the "same as or obvious from" the product mentioned by Yamasaki et al. This is the test set forth In re Thorpe.

Thus, Applicants respectfully submit that Claims 1 and 3 are patentable over Yamasaki et al. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. §103

Claims 2 and 4-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yamasaki et al. as applied to Claims 1 and 3 and further in view of Abbott et al. Regarding Claims 2 and 4, The Examiner cited Abbott et al. as teaching “a lead frame comprising copper alloy (Col. 4, lines 39-40).” Claim 2 recites “said leadframe consists essentially of copper alloy.” Claim 4 recites “said leadframe comprises copper alloy.”

Claim 2 depends from Claim 1, and Claim 4 depends from Claim 3. As described above, Claims 1 and 3 are allowable over Yamasaki et al. taken alone. Abbott et al. do not overcome the deficiencies of Yamasaki et al. insofar as the patentability of Claims 1 and 3 is concerned. Therefore, Claims 2 and 4 are allowable over the combination of Yamasaki et al. and Abbott et al.

With regard to Claims 5 and 6, the Examiner admitted that “neither Yamasaki et al. nor Abbott et al. teach that the chemical etchant comprise [sic] sulfuric acid or hydroxide peroxide.” Nonetheless, the Examiner refused to give patentable weight to these limitations because they “are considered to be product-by-process limitations.”

Claim 5 depends from Claim 4 and recites that “said chemical etchant comprises sulfuric acid.” Claim 6 depend from Claim 5 and recites that “said chemical etchant comprises hydrogen peroxide.”

What has been said regarding Claims 1 and 3, above, can be said even more forcefully with respect to Claims 5 and 6. Yamasaki et al. do not teach that their surfaces are roughened by chemical etching, much less that this is done with sulfuric acid or hydrogen peroxide. Thus Claims 5 and 6 are independently patentable for reasons in addition those set forth above in connection to Claims 1 and 3.

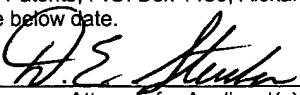
Claim 7, which the Examiner indicated would be allowable if rewritten in independent form, have been so amended. It is respectfully submitted that Claim 7 is now allowable.

Claims 21-35 have been added to further characterize the surface of the chemically-etched leadframe. These claims are supported at page 10, lines 6-20, of the specification.

For the above reasons, Applicants respectfully request allowance of Claims 1-7 and 21-35. Should the Examiner have any questions concerning this response, the Examiner is invited to call the undersigned at (408) 982-8200, ext. 1.

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I hereby certify that this paper or fee is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the below date.



Attorney for Applicant(s)


Date of Signature

Respectfully submitted,


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Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 5A-5E, 6A-6E, 7A-7C, 8A-8C and 10. These sheets replace the original sheets including Figs. 5A-5E, 6A-6E, 7A-7C, 8A-8C and 10. In Figs. 5A-5E, 6A-6E, 7A-7C, 8A-8C and 10, previously omitted element 38 has been added.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes